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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/629,704

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Koji Arihara

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EXAMINER

KRAUSE, JUSTIN MITCHELL

ART UNIT

PAPER NUMBER

3682

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/629,704

Applicant(s)

ARIHARA, KOJI

Examiner

Justin Krause

Art Unit

3682

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 2, 3, 5, 6, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomaru in view of Minamoto et al (US Patent 5,048,364).

Tomaru discloses tilt adjustable steering column assembly for an automotive vehicle, comprising:

an elongated jacket tubular member (Fig 19, 402) having a tilt rotation axle (end near 401c) at one end thereof;

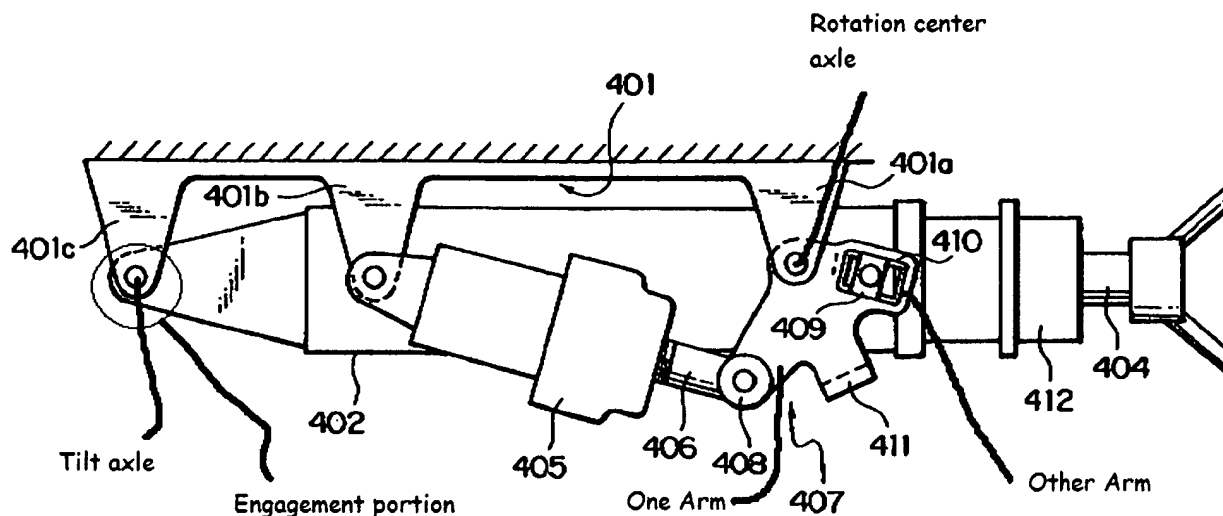
a fixed bracket (401a) placed at a predetermined middle position of the jacket tubular member and having an engagement portion that is engaged with a tilt input axle mounted on the jacket tubular member;

a bell crank lever (407) having a rotation center axle rotatably supported on the fixed bracket and rotatably supports the tilt input axle of the jacket tubular member on one arm thereof;

and an actuator (405 with 406) having a rod portion to operatively actuate another arm of the bell crank lever to be moved to pivot the bell crank lever, the fixed bracket supporting the rotation center axle of the bell crank lever to enable the rotation center axle of the bell crank lever to swing with respect to the fixed bracket and the engagement portion of the fixed bracket being formed in an elongated hole (410), the

elongated hole being formed to coincide with a pivotal orbit of the tilt input axle about the tilt rotation center of the jacket tubular member.

**FIG. 19**



Tomaru does not disclose an eccentric bush interposed between the rotation center axle of the bell crank and fixed bracket.

Minamoto teaches an eccentric bush (40, fig 7) to absorb the difference in locus between the linear motion of the actuator and arc motion of the tilt device. (Col 3, lines 40-43)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify steering column assembly of Tomaru and incorporate an

eccentric bush as taught by Minamoto as a way to absorb the difference in locus between the linear motion of the actuator and arc motion of the tilt device.

Regarding claim 3, a predetermined eccentric distance is provided between a rotation center axis and the rotation center axle of the bell crank because the eccentric bush must have a hole in it for the rotation center axle to pass through, and therefore requires a predetermined eccentric distance to be established in order to make the hole in the bush.

Regarding claim 5, the predetermined distance is provided as compensation for error between the rotation orbit of the input axle and the axial distance between the rotation center axle and the tilt input axle as radius of curvature and the center line of the elongated hole. (Minamoto Col 3, lines 40-43)

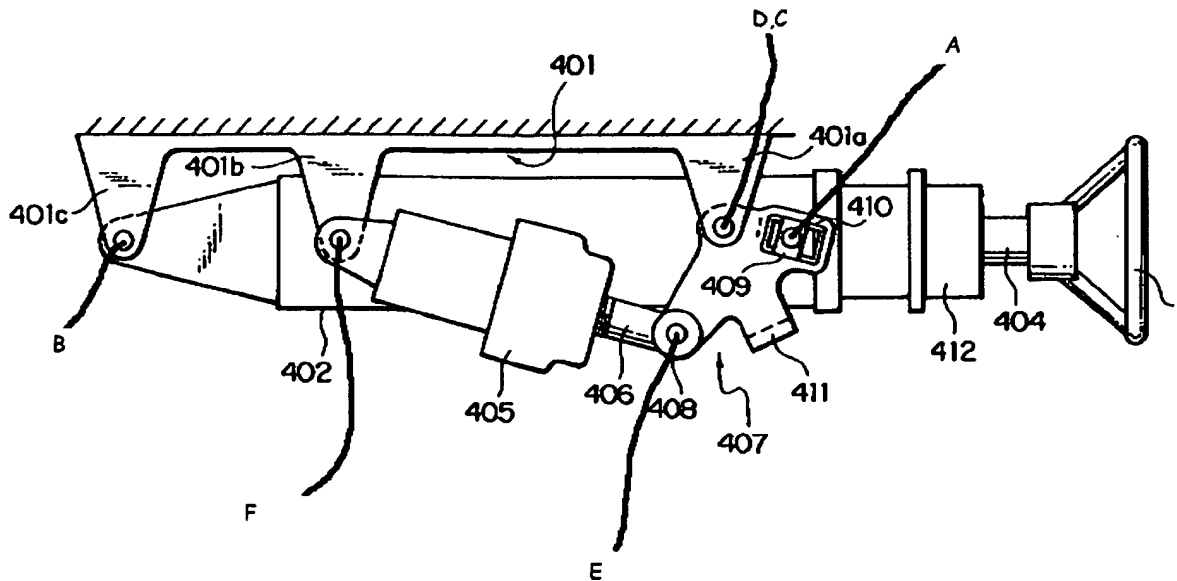
Regarding claim 6, Tomaru discloses a guide member (416a, 416b) attached around the elongated hole.

Regarding claim 8, the elongated hole is of a substantially ellipse shape.

Regarding claim 9, Tomaru discloses the fixed bracket fixed onto the vehicle body (as illustrated by ground marks in Fig 19), the tilt rotation center axle rotatably supported on a vehicular body forward bracket (401) via a first auxiliary bracket (401c) integral to the vehicular body forward bracket and a second auxiliary bracket (401a) is interposed between one arm of the bell crank lever and the jacket tubular member.

Regarding claim 10, the turning pair points are indicated in the drawing below using the same reference numerals (A-F) corresponding to the first through sixth

turning pair points as described in claim 10. Points D and C appear to be directed to the same point, however are different due to the movement of the eccentric, which is not illustrated due to the fact that it is an incorporated teaching of Minamoto.



1. Claims 4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomaru and Minamoto as applied to claim 3 above, and further in view of Heinzman et al (US Patent 5,669,634).

Tomaru and Minamoto disclose all of the claimed subject matter as described above but do not show a center line in an elongated direction of the elongated hole is made coincident with a curvature of the pivotal orbit of the tilt input axle

Heinzman teaches an elongated hole (84a and b) with the center line an elongated direction made coincident with a curvature of the pivotal orbit of the tilt input

axle (60b) which allows the steering column to be adjustable. (see figure 2, Col 3, lines 31-38)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the elongated hole geometry as taught by Heinzman into the steering column of Tomaru and Minamoto as a means to allow the steering column to be adjustable. The bell crank arm of Tomaru already rotates in an arc coincident with the tilt input axle as illustrated in Figs 19-21, the addition of a guide form would be easily facilitated without hindrance to the function of the device.

Regarding claim 7, Tomaru discloses a steering wheel (403) attached to the other end opposite to the one end thereof.

Regarding claim 8, Heinzman discloses an elongated hole that is substantially elliptical in shape.

### ***Response to Arguments***

2. Applicant's arguments filed May 31, 2006 have been fully considered but they are not persuasive.

Applicant argues that the claimed arrangement of the eccentric bush is not suggested by Tomaru and Minamoto and there is no motivation to combine.

The examiner disagrees. The device of Tomaru contains a linear eccentric device (409) which corrects for differences between the lever lengths as the bell crank rotates (see paragraph 00136). Tomaru also discloses the bell crank to have a rotation center

axle and Minamoto discloses the use of a rotary eccentric to correct for differences between rotational and linear movement of the device. The replacement of the fixed axle and linear eccentric with a rotary eccentric would have been obvious as both arrangements would solve the same problem equally well. The substitution is a simple reversal of parts within the arm of the bell crank. The eccentric is shifted to the rotation center and a fixed axle is shifted to the outside end of the arm, which is the arrangement taught by Minamoto. With respect to lack of motivation, both Tomaru and Minamoto utilize eccentrics for the same reason as the present application, namely reduction of error caused by the different radii of rotation of bell crank with respect to the steering column, consequently providing clear motivation to utilize such an arrangement.

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Krause whose telephone number is 571-272-3012. The examiner can normally be reached on Monday - Friday, 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK  
7/26/06

A handwritten signature in black ink, appearing to be 'Richard Ridley', written in a cursive style.

RICHARD RIDLEY  
SUPERVISORY PATENT EXAMINER